

This application claims priority based on provisional patent application 60/430,123 filed on 12/02/2002

## **POP-UP MECHANISM TO RAISE THE TOP OF PIECES OF FURNITURE**

### **5 BACKGROUND OF THE INVENTION**

#### **Field of the Invention**

This invention relates to the field of fold out or pop-up tables in general but more  
10 particularly to a mechanism integrated into a piece of furniture to make its top pop-up.

#### **Background**

Over the years a number of inventions have concerned themselves with the  
15 integration of a table with a trunk or similar types of boxlike containers. In one  
instance, a container normally found inside the trunk is taken out, articulated in such  
a way so as to change its shape into a tabletop which sits atop the trunk. Other  
inventions have the tabletop folding upward and outward after the trunk lid is opened,  
sometimes integrating the table top with the interior side of the trunk lid. Other  
20 patents disclose more far out concepts such as patent 3,940,175 by Robinson which  
discloses a small trailer which converts into a picnic table and patent 4,581,902 by  
Starck which discloses a tabletop over a portable cooler.

These inventions do not provide the same functionality nor do they provide the same advantages as the invention disclosed herein.

5

## **SUMMARY OF THE INVENTION**

It is a first object of the present invention to provide a piece of furniture with a pop-up tabletop.

10

It is a second object of the present invention to provide for a pop-up mechanism that is reliable and easy to use.

It is a third object of the present invention to provide for a pop-up mechanism which is compact and can be shipped economically to provide a cost advantage in marketing costs.

15

It is a final object of the present invention to provide for a pop-up mechanism that requires minimal effort on the part of the user to move the tabletop from one position to another.

20

In order to do so, the tabletop is also the top of the trunk, chest or other box like piece of furniture and it moves upward and laterally in an offset position relative to the trunk using a system of cantilevered arms. The word piece of furniture is used here to

25

represent any type of furniture, box or container.

5 The foregoing and other objects, features, and advantages of this invention will become more readily apparent from the following detailed description of a preferred embodiment with reference to the accompanying drawings, wherein the preferred embodiment of the invention is shown and described, by way of examples. As will be realized, the invention is capable of other and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as  
10 illustrative in nature, and not as restrictive.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

15 **Fig. 1** Is a perspective elevational view of a pair of pop-up mechanisms.

**Fig. 2** Is a side elevational view of a piece of furniture where the pop-up mechanism is in an open configuration with the top of the piece of furniture raised.

20 **Fig. 3** Is a side elevational view of a piece of furniture where the pop-up mechanism is in an closed configuration with the top of the piece of furniture lowered.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A pop-up mechanism **10**, usually found in pairs with one mechanically fastened to one side of a piece of furniture **26** and the other fixedly attached to an opposite side so that they are parallel to each other.

Each pop up mechanism **10** has a pair of cantilever arms **12, 12'** which are joined together by an upper oblong member **14,14'** and a lower oblong member **16,16'** both being parallel relative to each other and each being rotationally attached to opposite ends of the pair of cantilever arms **12, 12'**. The pair of cantilever arms **12, 12'** is further rotationally engaging a brace **18, 18'** which is fixedly attached to one side of a piece of furniture **26** (**Fig. 2-3**). A biasing means **20, 20'** connects one point of the brace **18, 18'** to one point of the lower oblong piece **16, 16'** in order to provide a near zero force requirement for lifting a tabletop **28**. The two pop up mechanisms **10** are joined together by way of a cross bar **22** (dotted lines) which is normally mechanically fastened to the cantilever arms **12, 12'** using predrilled holes **30, 30'** to pass mechanical fasteners. The cross bar **22** thus installed allows for each otherwise separate pop up mechanisms **10** to work in unison and is selected by a craftsman during final assembly of the pop-up mechanism **10** according to the size of the piece of furniture **26** and also, to some extent to provide a match in wood essence with the rest of the piece of furniture. The cross bar **22** is not essential to the workings of the

pop up mechanism **10** but it does help in making it work more reliably. By providing with only a pair of pop-up mechanisms **10**, without the cross bar **22** an economy in shipping can be achieved.

5

A pair of stoppers **24, 24'** inserted into stopper holes **32, 32'** situated on the braces **18, 18'** stop the cantilever arms **12, 12'** so that they can come to a rest at a given position. That position can be changed by repositioning the stoppers **24, 24'** into a different stopper hole **34, 34'**. Each of the cantilever arm **12, 12'** is shaped like a  
10 hockey stick which allows the pop-up mechanism **10** full motion as well as to reduce the stress on the biasing means **20, 20'**. The upper oblong members **16, 16'** have predilled top fasteners holes **36, 36'** through which mechanical fasteners pass in order to connect with wooden braces (not shown) themselves being part of the tabletop **28**.  
The upper oblong members **16, 16'** could alternatively be « L » shaped so that the  
15 part making contact with the tabletop **28** would have predrilled holes to pass mechanical fasteners therethrough.

In **Fig. 2**, the tabletop **28** is in its fully raised and extended configuration where it is resting in an overhanging, offset position in relation to the piece of furniture **26**. In  
20 **Fig. 3**, the tabletop **28** is in the lowered position. The tabletop **28** can be used as part of a coffee table where it generally lies low and unobtrusively to then be raised and brought closer to the user due to its being offset. It can also be used in a

25

bedroom in lieu of a nightstand since the tabletop **28** only needs to be brought near a bed when in use and is otherwise set some distance away from the bed.

5

10

15

20

25